CHRONIC INTESTINAL STASIS

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CHRONIC INTESTINAL STASIS:

REPORT OF TWELVE CASES, WITH POINTS OF SPECIAL INTEREST ILLUSTRATED.*

BY

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Preamble.—It is now about fifteen years since Sir Arbuthnot Lane first reported the investigations from which have been evolved his now well-known views concerning the existence, nature, causes, results, and treatment of the symptom-complex which he terms *chronic intestinal stasis*. From indifference on the part of the medical profession, some members have passed to attention, then to criticism, some to acceptance and practice, others to condemnation or ridicule. In the meantime Lane himself, and others, ourselves among the number, who have followed him from the first, have gone on studying the subject from various points of view. He has elaborated his original views here, curtailed there, correlated everywhere. As time has passed and his cases have remained longer and longer under his observation, changes in technic have been made as dictated by results.

In his most recent contribution to the subject Lane (1) says, with

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reference to the skepticism with which his work has been received in some quarters: "Till I saw the marvelous consequences of freeing the ileal effluent, I should have adopted exactly the same skeptical attitude and would have required very definite evidence to convince me.

"That evidence has now been before the world for a long time, and these patients have been carefully observed by the ablest surgeons in the world. They still exist in increasing numbers, and are always at the disposal of any observer who will take the trouble to investigate them.

"It is no longer a question of argument, it is a fact which is absolutely clear and unassailable."

Those who have followed Lane's work, especially those who have merely studied his various writings on the subject, having no personal knowledge of his cases, are not all in accord with his confidence in the absolute clearness and unassailability of his "evidence." None, however, can deny that he has opened a new field of observation, or that he has approached an old subject from a new and broader point of view. He has caused both internists and surgeons to reconsider, and in large measure to reconstruct, their views concerning the cause and treatment of certain conditions associated with perverted function of the different portions of the alimentary canal. The facts, leaving out of consideration for the moment that which is purely theoretical, which Lane has established concerning the existence of chronic intestinal stasis and the disastrous results thereof when the condition is neglected, are certainly of preeminent importance. Just how far time and further investigation will verify all his contentions regarding the far-reaching effects of stasis, the end results of disease and disaster, cannot be predicted now.

On other occasions I have called attention to various phases of the subject under discussion. To-day, after briefly reviewing certain salient points of theory and fact, I wish to add to the evidence a few cases which seem to indicate the far-reaching importance of chronic intestinal stasis as a factor in the production of pathological conditions hitherto not definitely associated with the drainage scheme of the body.

What is Stasis?—The confusion of ideas concerning the exact meaning of the term chronic intestinal stasis is still apparent in the literature on the subject. Many fail to find in stasis anything different from "old-fashioned constipation," some holding it to be "a descriptive name for the old disease, constipation." Many

use the terms indiscriminately, regardless of the portion or portions of the intestine involved, and regardless of the causative factors concerned.

The definitions of constipation which have formerly been accepted as adequate do not describe the condition which we now know as chronic intestinal stasis. Constipation, which is usually considered to involve the large bowel, particularly in its lower portion, results, as a rule, from improper diet, insufficient fluid intake, lack of exercise, a general atonic condition of the body-tissues, or a combination of two or more of these factors. This condition may, and often does, supervene, even in marked degree, when the lumen of the gut is entirely free from angulations, kinks, and other obstructive abnormalities. Furthermore, constipation may exist to a very pronounced degree, even in the intractable form known as obstipation, and yet the patient may suffer very little from the effects of absorption of the retained effete material and its toxins.

In chronic intestinal stasis, on the other hand, while the factors which produce constipation may be operative, others are involved, and are definitely demonstrable by diagnostic means at our command. In the first place, according to Lane's theory, the evolution of man from the all-four posture of his progenitors of field and forest resulted in a general tendency to visceroptosis. This tendency is often accentuated in the life of the individual by the overloading of the stomach and intestine, especially in early life. The dropping of the abdominal organs gives rise to stress and strain upon the mesentery and its attachments. Nature attempts to offset this strain by the formation of practically bloodless "evolutionary bands," for the purpose of supporting the viscera and preventing the ptosis. Here, as elsewhere, the law of adaptation is not uniformly effectual. These evolutionary bands develop with unequal strength in different parts, and the result is unequal support of the viscera throughout. In consequence of this unequal support, the bowel is held up firmly at some points, while it is allowed to sag at others. Angulation or kinking at the point of support follows. This abnormal fixation at a given point in the length of the intestine, with a dropping of the tube on either side, narrows the lumen of the gut to a greater or less degree according to circumstances, and to that degree interferes with the passage of its contents.

The immediate result of this alteration in the drainage scheme is such a slowing in the passage of the food along the alimentary canal that an excess of toxic matter is formed, especially in the small intestine. In other words, a condition of stasis supervenes. Inas-

much as the factors which lead to this are not transitory, but permanent unless corrected, the condition becomes chronic, and hence we have chronic intestinal stasis. The blood stream, in such cases, surcharged with the toxins taken up from the retained or residual fecal content of the intestine, conveys to the transforming and excretory organs larger quantities of these poisons than they can eliminate. All the tissues of the body then become supplied with blood laden with toxins; they are improperly nourished as a consequence; they deteriorate, and are soon unable to offer the accustomed and proper resistance to infection and disease.

The underlying or primary causes of chronic intestinal stasis are to be found, then, in the developmental history of the human species, as well, presumably, as in the embryological history of the individual. The animal on all-fours may and does have constipation, confined, supposedly, to the rectum and pelvic colon. It is doubtful, however, whether intestinal stasis, as Lane employs the term, exists to any large extent in quadrupeds, though it is quite conceivable that artificial diet and conditions of life may bring about a state of affairs, in some instances, analogous to that found in human beings.

In the all-four state of existence no mechanical factors are operative in the production of stasis, as is the case in the upright posture of man, the abdominal viscera of animals having no cause for the general ptosis found in man.

The association of other diseases, notably tuberculosis, with stasis as remote or end results of this condition, as suggested by Lane, would indicate the very common existence of stasis in bovines and primates. This, however, is a matter yet to be established for man as well as for quadrupeds.

The immediate or secondary causes of chronic intestinal stasis, according to Lane's views, are concerned with nature's efforts to overcome the tendency to visceroptosis by laying down "lines of resistance," which become crystallized into the "evolutionary bands" to which we have alluded. (I have discussed elsewhere(2) the possible inflammatory and congenital origin of some of the adventitious intraabdominal structures which are supposedly concerned in the production of the condition under consideration.) These bands form most frequently at certain points of predilection, though no part of the drainage tube may be considered immune to their development.

The first part of the intestinal tract to be displaced downward in the lifetime of the individual is the large intestine, the "cess-

pool" of the gastrointestinal canal. It is, therefore, the first to be considered with regard to nature's efforts at support. This part of the gut is favorably situated for downward displacement. Furthermore, it retains its contents for a relatively long time, and largely in a state of solid consistency, the inevitable result in many cases being the dragging down of the containing cesspool. If this is not offset, the results are elongation of the pelvic colon, return of fecal matter into the descending colon, and prolapse of the iliac colon into the true pelvis. Nature, in order to prevent these contingencies, lays down lines of resistance. These appear early in life, according to Lane, "as streaks on the outer surface of the mesentery of the iliac and pelvic colon, and particularly at the junction of the iliac with the pelvic colon." Appearing first about the base of the mesentery, and gradually extending along its surface, these streaks, in time, become thicker and more distinct, eventually appearing as a definite band, more or less entirely separate from the mesentery except at its limits of attachment. It anchors the gut, forming the "first and last kink" (first to develop, and last in the downward course of the canal). This last kink affects the large bowel where it crosses the brim of the pelvis on the left side, sometimes involving the ovary, as we shall presently see.

The cecum, ascending colon, and the hepatic flexure may become involved in the formation of these evolutionary bands, the cecum and appendix being particularly liable because of their peculiar configuration. One of the first of the structures to be described by Lane was the "apron of peritoneum" (subsequently described by Jackson, and often referred to as "Jackson's membrane"), extending from the cecum and ascending colon to the lateral abdominal wall, sometimes involving in its folds the appendix, particularly when this is unusually long.

Crystallizations of lines of force are likewise formed to give support to the sagging transverse colon, the hepatic and splenic flexures and the greater curvature of the stomach serving as anchorage points in nature's efforts to hold up this part of the gut.

At an early period in the development of the individual opaque streaks form on the undersurface of the mesentery, attaching the last few inches of the ileum, retaining the end of the ileum, and helping to hold up the cecum. The band thus developed, generally known as "Lane's band," or the ileopelvic band, is perhaps more commonly found than any other, the resulting ileal kink giving rise to both immediate and far-reaching harmful results. Ileal stasis has received a great deal of attention from Lane and others latterly.

Some investigators have sought a cause for this form of stasis in incompetency of the ileocecal or ileocolic valve(3) and Kellogg, of Battle Creek, Mich., has devised an operation for the correction of this defect.

Case has found the ileocolic valve incompetent in about one-sixth of his bismuth cases. This statement is based on the röntgenoscopic examination of more than 3000 persons, up to June, 1914, most of them constipated, and all suffering from gastrointestinal disturbances. He refers to the finding of incompetency by others as follows: Dietlen, 22 in 100 cases, 1 to 5; Holzknecht and Singer, 3 in 15, 1 in 5. Dielten, however, found insufficiency of the valve in only one of the normal cases examined during a period of several years. This was in keeping with Case's own findings.

Kellogg maintains that radical surgery is, with comparative rarity, either necessary or profitable in dealing with ileal stasis; and that, granting that this condition is due to bands and kinks, short-circuiting, either with or without colectomy, will not permanently relieve the stagnation in the terminal ileum unless a new ileocolic valve is made. Case, in this connection, says that in every case of stasis in which he has made an *x*-ray examination following the short-circuiting operation he has found retrograde peristalsis in the colon.

In the majority of my cases the ileocecal valve was competent. When patent I have considered this as the effect rather than the cause of the chronic intestinal stasis—a view which is in accord with the opinion of Lane and Jordan. The importance of incompetency of the ileocecal valve, as a causative factor in the production of ileal stasis, must be determined by further study. Its existence in a certain proportion of cases cannot be questioned. Case I, of the series herewith presented, is an illustration of the existence of incompetency of this valve.

Case I.—S., male, aet. thirty-eight. Referred by Dr. Albert W. Ferris, New York City, who previously treated the patient for neurasthenia. First seen by me January 18, 1909. At that time he complained of nervousness, of constipation, of aches and pains in different parts of the body, of cold hands and feet, and of general physical unfitness. He was placed under a régime of rest, diet, and medicinal treatment, under which he got along fairly well, except an occasional acute attack, such as grippe, colds, and sore throat. In January, 1915, he was sent to the Alston Private Hospital, suffering from acute appendicitis, superimposed upon chronic appendicitis for which he had refused operative treatment. Operation, February 17, 1915. The appendix was found hung up to the undersurface of the mesentery of the terminal ileum, as shown

in Fig. 1. The cecum was very mobile, and was rotated from right to left, with the appendix as a fixed point. The ileocecal valve was found to be incompetent. This was corrected by the Kellogg operation, as illustrated in Fig. 1*a*. The appendix was removed in the usual way, and the raw surfaces were carefully sutured over. Uneventful recovery followed, since which time the patient has been perfectly well.

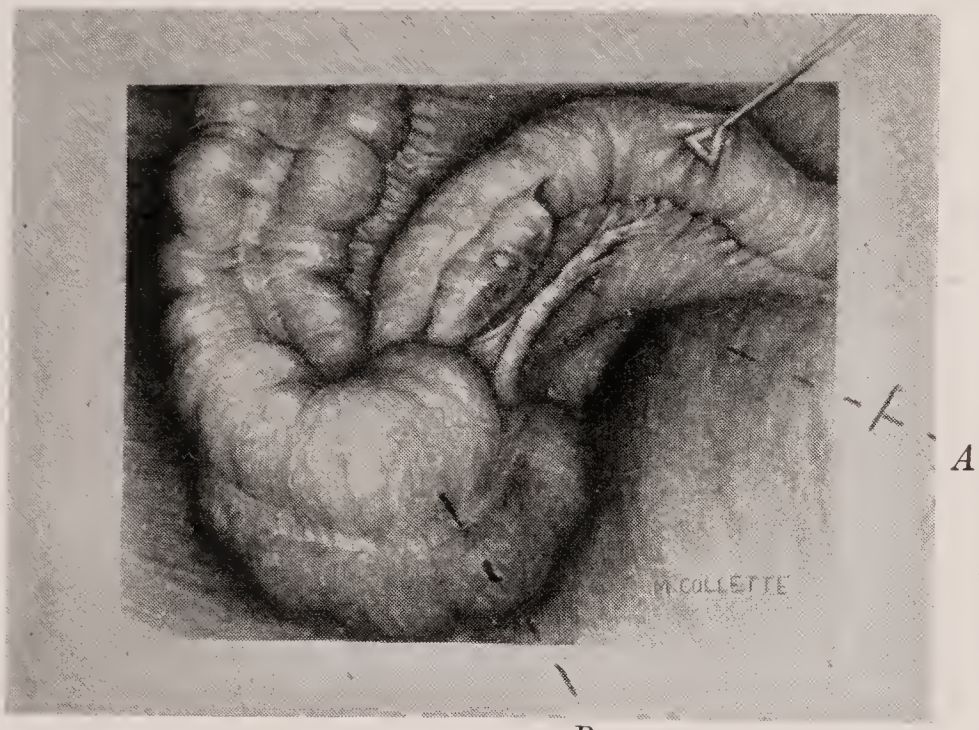


FIG. 1.—*A*, Appendix hung up to undersurface of mesentery of ileum; *B*, mobile cecum, rotated to left.

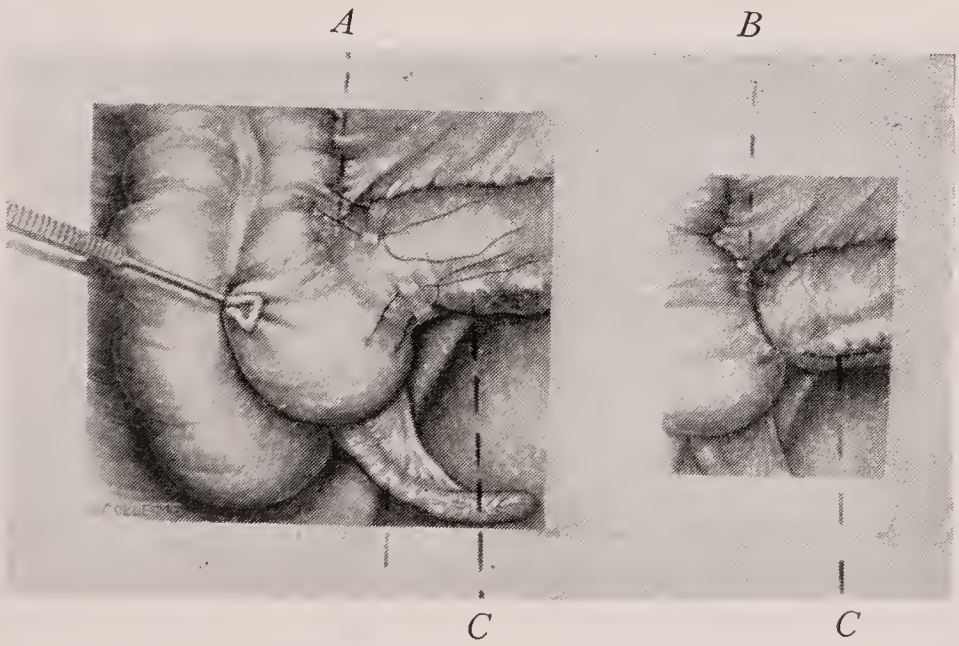


FIG. 1*a*.—*A* and *B*, Successive steps in Kellogg method of correcting incompetency of ileocecal valve; *C*, line of sutures covering raw surface left after removal of "fold of Treves," which was found much enlarged, and the seat of inflammation and broken-down fat.

Duodenojejunal resistances, as peritoneal bands, are formed to oppose the drag upon the jejunum, and the strain which it, in turn, exerts upon the duodenojejunal outlet. Obstruction to the outlet

results, the duodenum becomes dilated, drags upon the pyloric outlet, where further resistances are developed, involving, at times, the gall-bladder, the pancreas, and other organs, and giving rise to manifold disturbances, and aggravating others already existing.

Lane has insisted all along upon the study of the digestive tract *as a whole*, and not in its integral parts, in the endeavor to determine the method of development of the various structures which interfere with its drainage and normal function. Considering the question from this point of view, one does not need to describe specifically "the bloodless fold of Treves," "the parietocolic peritoneal fold of Jonnesco and Juvara," "Jackson's membrane," "the genito-mesenteric fold of Douglas Reid," or any other particular structure that may interfere, under certain circumstances, with body drainage through this main channel. Nor is it necessary to determine whether these structures are congenital, inflammatory, or evolutionary in origin. It is well that secondary matters of this kind be studied, so long as they do not cloud the primary issue—the existence of such adventitious bands and membranes, the interference thereby with body drainage, the resulting stasis in the canal, the absorption by the tissues of poisons from the "unused increment" of fecal content, or the residual feces, the autointoxication, toxemia, or "subinfection" which follows, and the long chain of signs, symptoms, and remote results.

I have repeatedly stated that it seems to me, from years of study of cases before, during, and after operation, that Lane's evolutionary or mechanical theory of the origin of these bands, folds and membranes accounts for a larger number of cases than any of the other theories. All, however, are doubtless correct in certain instances, some being congenital, some inflammatory, and others evolutionary.

The immediate results of the miscarriage of nature's effort to offset the tendency to visceroptosis are more or less serious according to the degree of obstruction to the passage of the contents of the canal, to the degree of "compensatory peristalsis," and to the patient's habits of life and general condition (aside from the stasis).

The kinking or obstruction of the canal, the damming back of the contents, and the general slowing of the action of the drainage system—the stasis, in other words—may be associated with constipation or diarrhea, or both. Sometimes constipation, with perhaps "dyspepsia" or "indigestion" are the symptoms noted by the patient, and the diagnosis is made in accordance with this history. Dyspepsia or indigestion tablets, laxatives, in many instances,

constitute the treatment prescribed by the family physician, the one generally consulted by patients thus affected. It is not difficult to imagine that this line of attack brings forth meager results. The chances are that the condition becomes progressively worse. The symptoms first complained of are soon augmented by others more severe in character. Loss of appetite, nausea and vomiting, headache, malaise, backache, pains in different parts of the body, loss of flesh, foul breath, blotched skin, coldness and clamminess of the extremities, are characteristic symptoms which may supervene. To these may be added a lumpy condition of the breast, sometimes mistaken by both patient and physician for cancer; mental lethargy, sometimes pronounced mental depression; loss of interest in the opposite sex, and in life in general.

I have discussed elsewhere[4] the treatment of patients who come within the category of early stasis, with some or all of the signs and symptoms enumerated, and need not reiterate it here. It is not amiss, however, to emphasize strongly the fact that a large proportion of these patients may be restored to perfect health without any surgical intervention. I wish also to state emphatically that neither Lane nor those of us who have followed him in practice believe that such cases call for operation. Much of the discussion given to the *pros* and *cons* of operating in a radical way for stasis which may be treated by simpler means is entirely unnecessary. It would be fatuous to advocate radical surgery in these milder cases until nonsurgical methods have proved unavailing. It cannot be too strongly emphasized, however, that no patient who presents a symptomatology which suggests chronic intestinal stasis should be waived aside with indifferent consideration. If the "symptomatic treatment" so frequently accorded them is not promptly followed by cessation of the symptoms, more serious study should be accorded the case, first with regard to diagnosis and next with regard to treatment. For it is always to be borne in mind that even stasis is not static; it is not only chronic but progressively so. The neglected or improperly treated victim of a mild degree of stasis to-day may become a member of what I have described as the mid-group tomorrow; and who can say how soon the transfer will be made to the end group?

If the mild case is allowed to progress to the more severe stage, in which the symptoms enumerated above are more pronounced in number and severity, it becomes necessary to reinforce the non-surgical treatment with the simpler surgical procedures, such as cutting bands, straightening angulations and kinks, removing ap-

pendices, and correcting other intraabdominal conditions which result from or are aggravated by the condition of stasis.

While, as I have said, it is not contended that the first two groups of cases, the mild and the mid group, are to be ruthlessly subjected to radical surgical procedures, such as ileocolostomy or ileocolostomy with colectomy, the fact remains that many cases reach the advanced degrees of stasis whether or no, and must be treated as such. There is no more reason, from sentimental, physiological, biochemical or surgical points of view, for allowing one of these unfortunate physical derelicts to eke out a miserable, incompetent, *untreated* existence, than there is for allowing a patient with advanced cancer to die under the it-is-too-late-to-do-anything régime! Something should and can be done for them. If they are already physically bankrupt—and they certainly are, in many instances, before we see them—it is folly to philosophize concerning the advisability of removing a part of the intestine, now entirely unfit, merely because, in the normal state of affairs, it has a function to perform! The skilled plumber, called in to rectify defects in the plumbing of a house, does not dally with parts which are patently worn out and unfit. He promptly removes them and substitutes new ones. In the human house, unfortunately, at this stage of surgical progress, we cannot substitute new parts in the drainage scheme, but we can remove certain obstructive portions, make new connections, render more likely the vicarious assumption of the function of one part by others, and otherwise facilitate drainage and forestall lasting unfitness, absolute invalidism, and perhaps untimely death.

Cases could be multiplied in increasing proportion, as time and experience progress, to illustrate the advanced stages to which chronic intestinal stasis may reach, rendering the patient a pitiful spectacle of general misery and unfitness. The following is one of many, which, it seems to me, proves not only that something should be done, but that the most radical methods would probably have proved more advantageous than the less radical procedure which was employed. It is by such cases that we learn when to resort to ileocolostomy and when to remove the colon.

Case II.—M., female, twenty-six years of age. The patient, when first seen by me, August 14, 1914, gave the following history: She had never been robust, but always slight and nervous. Menstrual history normal until she was twenty, since which time she had suffered a great deal at her periods. Bowels always regular. Six years ago the appendix, with a mass of adhesions, was removed. Previous to this she had had treatment, electrical and otherwise,

for "spinal trouble." For two years, 1911–1913, she was confined to bed, during part of which time she received sanitarium care. She complained of constant abdominal pains, sometimes on one side, sometimes on the other, usually worse on the right. When she consulted me she was having fainting spells, nausea and vomiting, marked tenderness of abdomen, cold hands and feet, headache—in short, she was an absolute invalid, able to sit up very little of the time. From the physical examination and the history the diagnosis of chronic intestinal stasis was made. This was subsequently verified by Röntgenoscopic examination.

Operation, Alston's Private Hospital, November 21, 1914. The following conditions were found: Upon opening the abdomen a

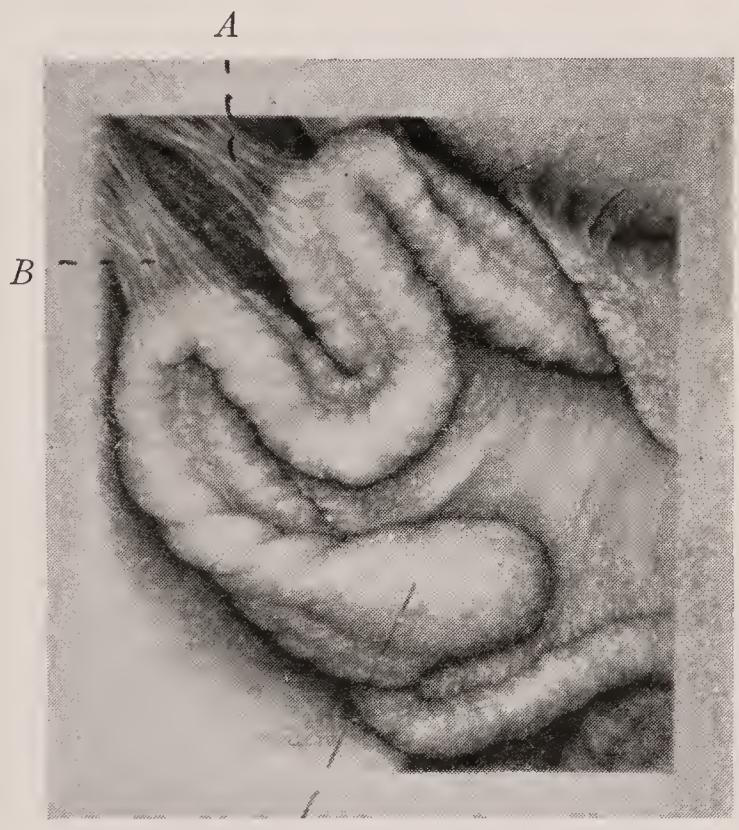


FIG. 2.—*A* and *B*, Bands holding up hepatic flexure and ascending colon; *B* and *C*, ascending colon and cecum kinked from before backward, and somewhat twisted.

pyloric spasm was evident, but the finger passed easily through the pyloric orifice. The duodenum was not distended, the gall-bladder was normal, filled with bile. The hepatic flexure of the colon was held as shown in Fig. 2. It was down in the right iliac fossa. The ascending colon and cecum were kinked from before backward, and somewhat twisted, causing a definite obstruction. At the terminal ileum was a kink from the old appendicular scar (Fig. 2*a*). The obstructing bands were divided transversely and sutured longitudinally. The ascending colon was straightened, leaving a large amount of raw surface on the right side and on the anterior wall. With great difficulty the ascending colon was secured in position and the raw surfaces covered. There was no duodenojejunal kink, but the last kink of the sigmoid was accentuated; this was corrected in the usual way (by cutting the angulating bands transversely and

suturing longitudinally). The abdominal wall was closed with difficulty because of the friability of the tissues and because of intra-abdominal pressure.

It was a grave question, at the time of the operation, whether it would not have been better to do a short-circuiting operation, with a subsequent colectomy if necessary, but it was decided to give the patient the benefit of the less radical procedure, and await results. She made an uneventful recovery, has steadily improved in general condition, has gained weight, her appetite is good, she is cheerful—in short, she is a changed individual. From chronic invalidism she bids fair to return to good health. It is too early, of course, to make a positive prognosis in this regard, but her deplorable condition certainly warranted what was done for her. Even more radical measures would have been justifiable.

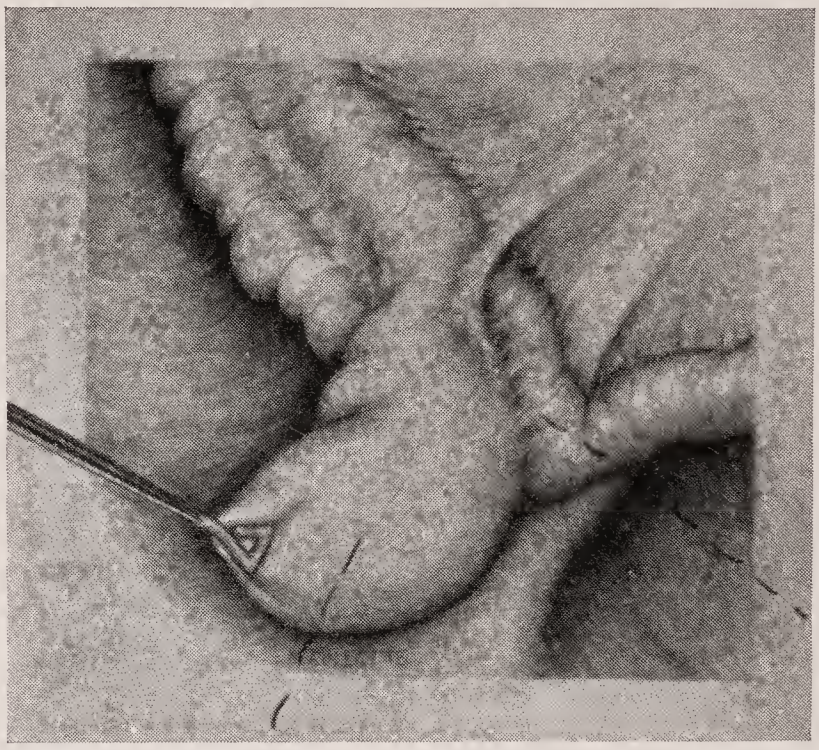


FIG. 2a.—*A*, Dilated cecum held up, showing, *B*, terminal ileum kinked from old appendiceal scar, with adhesions.

The remote results of chronic intestinal stasis, as suggested by Lane, furnish interesting food for thought. In psychiatry one speaks of border-line cases; in malignant disease we are wont to consider certain conditions precancerous. It is impossible, in either instance, to predict the time and manner of the passing over the line. By means of the sixth sense of diagnosis, that vague something which has been called the *imponderabilia*, we may know that the line has been crossed, but we cannot say when or how.

So, in the condition which we have come to consider under the term chronic intestinal stasis, we cannot say on what border lines of disease the patient may stand; and certainly we cannot say when

the line has been passed, beyond which the individual enters another realm of disease and suffering. As we know, Lane contends that chronic intestinal stasis is the groundwork upon which the superstructure of many diseases is placed. "The seventeen symptoms and nine diseases" enumerated by Lane have been pronounced by Adami "to be a horrible jumble." Perhaps so. Yet there is undoubtedly enough in Lane's contentions along this line to warrant serious attention rather than sneering or jocular comment. In the light of latter-day findings with reference to the internal secretions, their relations and correlations, it is unwise to unqualifiedly reject any serious suggestion from a conscientious scientific worker.

Lane has associated chronic intestinal stasis, in a causative relation, with tuberculosis, cancer, rheumatoid arthritis, Raynaud's disease, Still's disease, certain skin and nervous affections, and has reported cases in which these conditions were palliated or cured by ileocolostomy or colectomy. Chapple has repeatedly called attention to certain pelvic conditions associated with chronic intestinal stasis, and James Mackenzie has received new light upon his "X-Disease" in consequence of Lane's work in connection with chronic intestinal stasis.

In my work as visiting surgeon to the New York City Children's Hospital and Schools, Randall's Island, as well as in private practice, I have long noted the connection between what I formerly considered as constipation, and certain forms of mental and nervous affections, particularly epilepsy. I have repeatedly observed marked improvement of symptoms, and in mild epilepsy, a lessening in frequency and severity of the attacks, following a thorough clearing out of the alimentary canal. Ten years ago, when I became interested in the study of chronic intestinal stasis, and began to apply my findings to the patients on Randall's Island, I became more strongly convinced than ever that much could be done for these patients through the correction of defects in the drainage scheme of their bodies. I have therefore, for a number of years, been making observations along this line, full report of which will be published later. I have already reported one case* in which epileptic seizures decreased in frequency and severity following the operative treatment of chronic intestinal stasis. The following case is interesting in this connection:

* Case II, presented before the American Association of Obstetricians and Gynecologists, at Buffalo, N. Y., September 15, 1914. See "Operative Findings in Twelve Cases of Chronic Intestinal Stasis," Am. Jour. of Obst. and Diseases of Women and Children, vol. lxxi, No. 1, 1915.

CASE III.—K., male, aged eleven years. Referred by Dr. Eliza M. Mosher, of Brooklyn, N. Y., December 3, 1914. With the exception of hydrocele, when one year of age, for which two operations were performed, the last one followed by no return of the trouble, the previous history presented no points of interest other than that which applies to epilepsy. Since the third year of life the child has had epileptic seizures (probably *petit mal*), which the physicians consulted pronounced due to indigestion. No early history of constipation. The epileptic attacks occurred at intervals of from one to three weeks, when he would have from four to five a day. The usual treatment for this condition, according to the history, gave no relief. When he consulted me physical examination showed

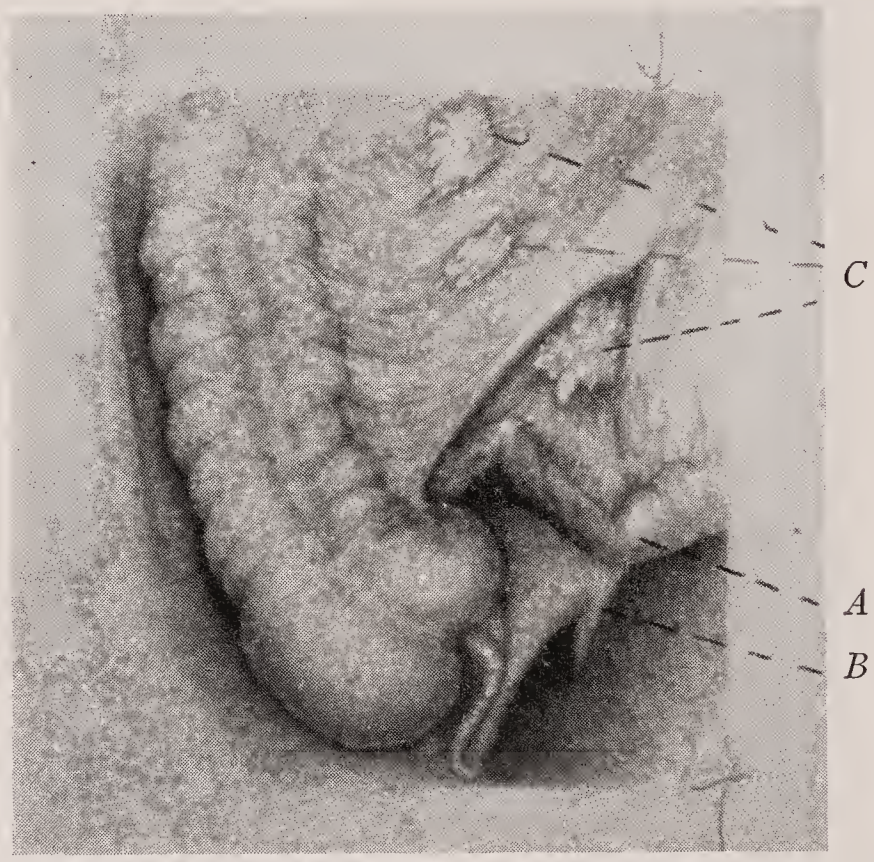


FIG. 3.—*A*, Ileal kink, resulting from, *B*, ileopelvic band; *C*, calcareous deposits in mesentery.

abdominal distention; moderate distention of stomach; prolapse of transverse colon to below umbilicus; wide dilatation of ileum on line with umbilicus; mobility of cecum.

Operation, December 17, 1914, at the New York Skin and Cancer Hospital. The following were the findings: Dilated stomach, reaching below umbilicus; ptosis of transverse colon; rather sharp duodenojejunal angle; ileopelvic band and ileal kink. At the end of the mesentery of the small intestine, about 2 inches from the cecum, was a large mass of calcified lymph glands, the calcareous portion about an inch in diameter, showing plainly on the upper surface of the mesentery, and also, though in smaller area, on the undersurface when the gut was lifted up. From this mass of glands upward and to the left was a chain of enlarged lymph glands on the mesocolon, some of them calcified. There was also a second mass

of calcified glands about 3 inches from the first. Enlarged, but not calcified, glands were found beneath the mesentery of the small intestine. Cecum and ascending colon moderately dilated, but showed no adhesions. Appendix not involved. The conditions found around the cecum and terminal ileum are shown in Figs. 3 and 3*a*. Ileocolostomy performed. Removal of the calcareous deposits deferred, to be taken care of in the event that colectomy proved to be necessary later. Especial care was taken in closing the wound in order to guard against the sutures giving way in case of an epileptic seizure.

The patient had two slight convulsive attacks in February, but no real epilepsy since that time. He has gained in weight, and is seemingly perfectly well.

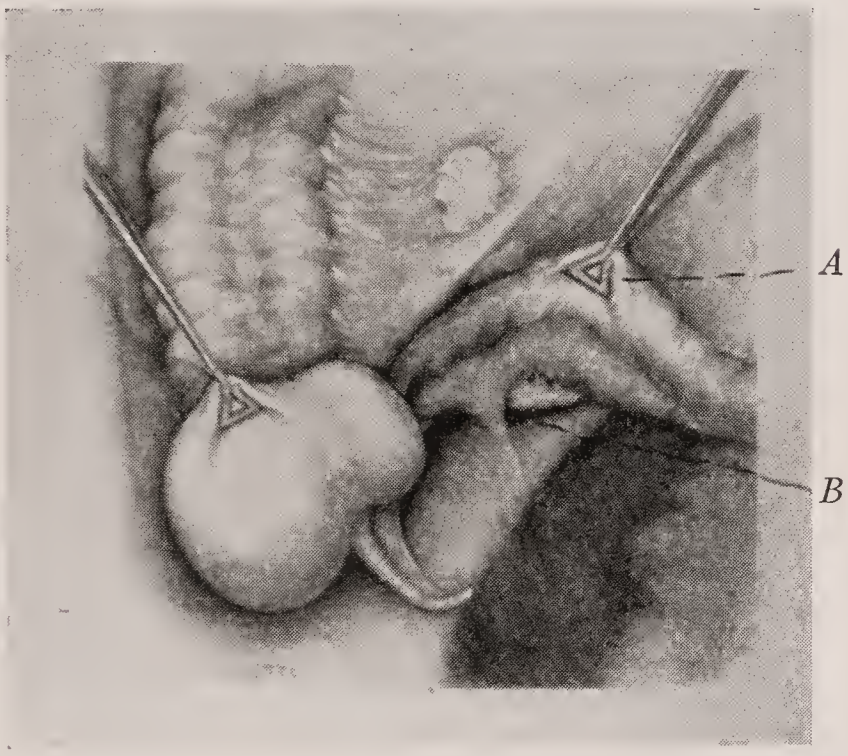


FIG. 3*a*.—*A*, Ileum held up, showing, *B*, attachment of ileopelvic band to brim of pelvis.

Lane has recently made the statement that "if women were not imperfectly drained the gynecologist would not have evolved." Whether we do or do not agree with him in this regard, there is unquestionably in many cases a causative connection between chronic intestinal stasis and many pelvic disorders. The following cases illustrate this.

CASE IV.—Mrs. S., twenty-four years of age, consulted me January 29, 1915, giving a history of pain in back, in hypogastric and right iliac region. This varied from mere soreness to a severe, sharp pain. The appendix had been removed seven years before. Since that time she has had progressive constipation, headache, loss of appetite, and some loss of weight.

Operation, January 29, 1915, at the New York Polyclinic Hospital. Upon exploration of the abdomen a definite ileopelvic band

was found, as shown in Fig. 4, extending along the ileum for a distance of about 2 inches when extended, and forming a V, the lower end of which went into the true pelvis. This was freed and the raw surfaces carefully sutured. The large, redundant and dilated cecum

FIG. 4.—*A*, Broad V-shaped ileopelvic band; *B*, bands attaching terminal ileum to cecum; *C*, lower portion of parietocolic bands.

FIG. 4*a*.—*A*, Band from colon to left ovary.

was plicated by the method of bringing the posterior and anterior muscle bands together, holding the cecum and ascending colon into normal position. The right ovary and tube were negative. The left ovary was cystic and enlarged. A strong band of adhesions ran from the pelvic colon to the left ovary (Fig. 4*a*), rotating the

colon downward. This band was cut transversely and the peritoneum sutured longitudinally. The ovary was removed. The patient made an uneventful recovery, and has steadily improved in health since the operation.

Case V.—Mrs. P., forty-six years of age; two children. Referred by Dr. Charles R. Walker, of Concord, N. H., February 23, 1915. According to the history the patient had had intestinal trouble for twenty years. At first, it was supposed to be uterine disease following the birth of her second child, and she was treated for years with tampons and pessaries. For a number of years she was a nervous and physical wreck. In 1909 she underwent operation for perineal

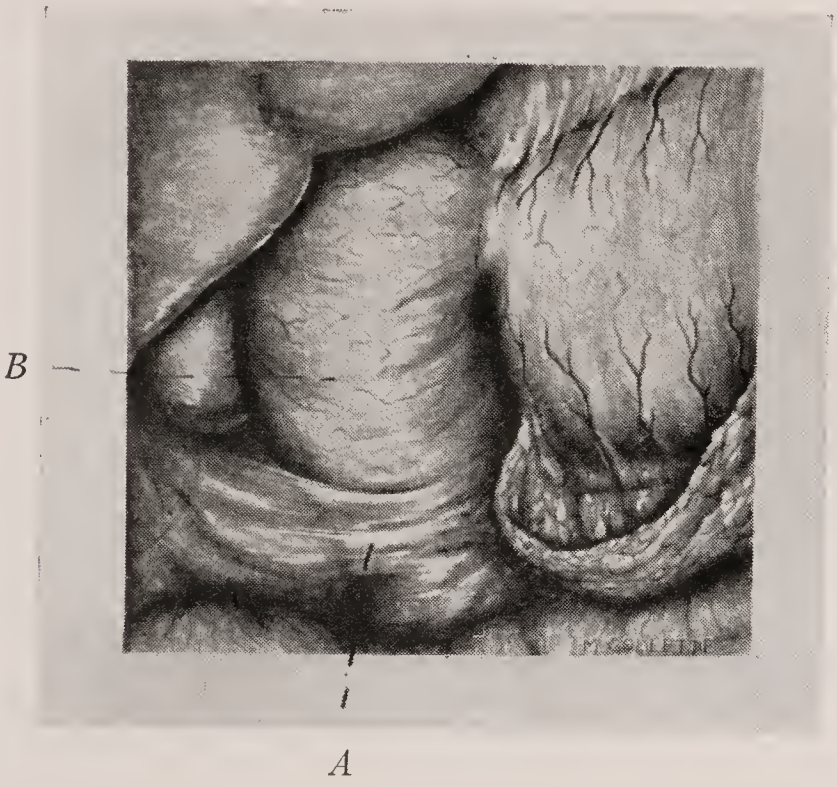


Fig. 5.—*A*, Bands across duodenum; *B*, dilated duodenum.

laceration, and in the same year laparotomy was performed for uterine suspension by shortening ligaments. Following this she was a complete invalid for months, and underwent all manner of treatment for all kinds of ailments, up to May, 1911. She then went to Boston, where *x*-ray examinations were made, showing prolapse of the colon. The surgeon then consulted lifted up the colon and "stitched it to the stomach," removing the appendix. No improvement followed this operation, and a year later the same surgeon, on *x*-ray examination, found the colon was not held in place. The patient underwent a further operation, and continued to suffer intense pain, at times, in both sides. Movements from the bowels were attended with extreme difficulty and intense pain.

When I examined her she presented marked symptoms of chronic intestinal stasis. Operation, March 6, 1915, at the New York Polyclinic Hospital, with the following findings: Upon opening the abdomen the great omentum was found turned up and fastened to the anterior abdominal wall at its upper portion, the stomach being thus slung upward. On separating a little of the right

extremity of the great omentum when traction was made on the transverse colon, as when in erect position, a number of bands were seen across the second portion of the duodenum (Fig. 5), causing distinct obstruction, evident even on the operating-table, the duodenum at its upper portion being greatly dilated. The pylorus was normal. The duodenal band was cut transversely, the angulation of the duodenum freed, and a flap of peritoneum (which was in such position as to give good support to the hepatic flexure) was placed over the raw surface. The ascending colon was fairly normal, excepting that the hepatic flexure was low. About 3 and 5 feet distant from the ileocecal valve on the small intestine were distinct bands (Fig. 5*a*), forming diverticula on the convexity of the gut, and adherent to the old abdominal scar. These bands of

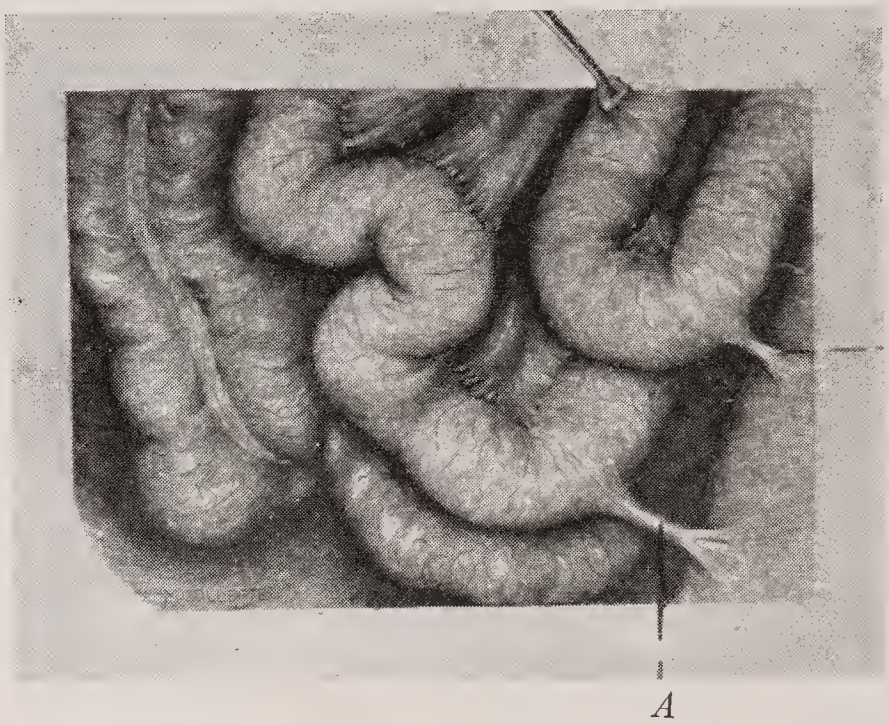


FIG. 5*a*.—*A*, Bands causing diverticula of small intestine.

adhesion, the size of a lead pencil, were cut and the raw surfaces on the abdominal wall and on the gut were sutured in the usual way, with interrupted linen stitches, paraffin dipped, longitudinally to the long axis of the gut. The descending colon was tightly adherent in the left flank, the pelvic colon showing three bands (Fig. 5*b*), the upper two connected together. These were cut transversely and sutured longitudinally. The lower band was adherent to the broad ligament and to a cystic and degenerated ovary. The ovarian vein was varicose, being as large as the index-finger. This was cut high up and the ovary, with the cyst the size of a robin's egg, removed from the end of the tube, and the tube exsected. A flap of peritoneum from the abdominal wall was sutured in position, the raw surface turned toward the gut so as not to leave any raw surfaces, and paraffin then applied. The ileocecal valve was tested for its competency, and while it was possible to get a little air past, it was practically normal. The slight lack of tone in the valve was probably accounted for by the anesthetic. (May this not be true of many cases reported and operated upon for incompetency of

the ileocecal valve?) The great omentum was left adherent in the upper part of the old scar, as it seemed to be securely anchored, and appeared not to obstruct the onflow of the intestinal contents. The great obstruction was in the duodenum and the small intestine at the site of the bands, and in the pelvic colon. Around the bands in the pelvis was a great deal of evolutionary tissue, also some inflammatory scar tissue—a combination of the two kinds of stasis "inflammatory" and "evolutionary."

The operation performed gives the patient a reasonable chance of being greatly benefited and perhaps entirely cured. If this palliative operative treatment does not effect a cure, ileocolostomy or colectomy may be resorted to later. The trouble caused by

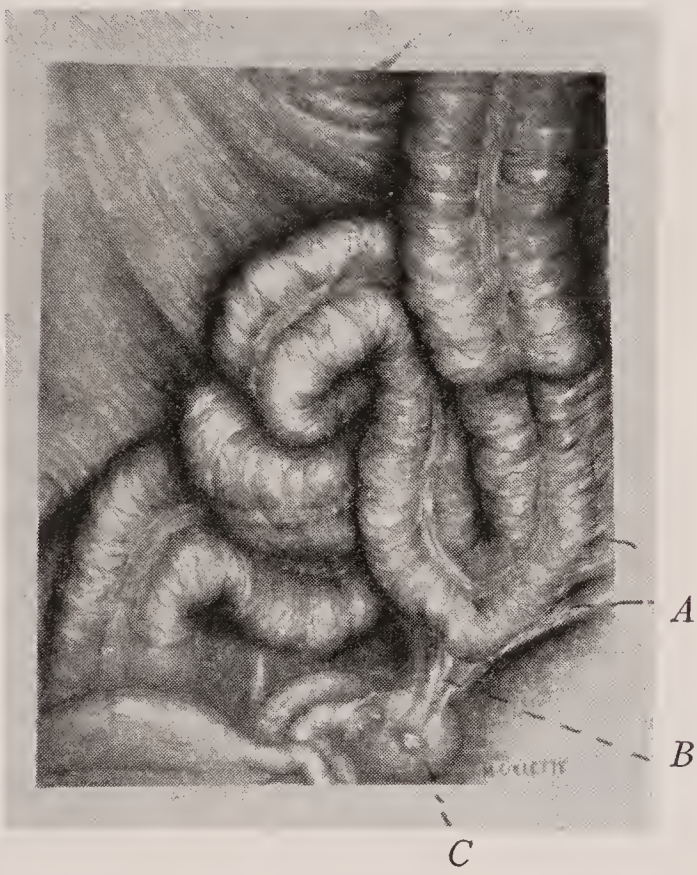


FIG. 5*b*.—*A*, Bands attaching pelvic colon to flank; *B*, band attaching pelvic colon to left ovary; *C*, left ovary.

the involvement in the bands of the ovary and tube will certainly be entirely relieved. The patient, apparently much improved, was presented before the New Hampshire Medical Society, May 19, 1915.

CASE VI.—Mrs. C., thirty-six years of age, one child. Referred by Dr. Woods Hutchinson and Dr. William Van Valzah Hayes, of New York City, October 17, 1914. She had been progressively losing flesh and strength, falling from 125 to 87 pounds. She gradually grew worse, until she became practically an invalid, with severe headaches, general abdominal discomfort, marked constipation, a great deal of nervous depression—so great at times that she wished to die—and periodic attacks of pain in the right side, simulating appendicitis, but coming on more frequently at the menstrual period. Diet and medical treatment was of little avail.

From the history and physical examination the diagnosis of chronic intestinal stasis was made. Operation, New York Polyclinic Hospital, October 21, 1914, with the following findings: Cecum dilated and very mobile, falling into pelvis. Inferior and outer

FIG. 6.—*A*, Parietocolic bands, attaching ascending colon to right abdominal wall; *B*, cecum, dilated and mobile; *C*, ileum held up, showing band of attachment to inflamed appendix; *D*, appendix; *E*, band from mesoappendix to right ovary; *F*, right ovary.

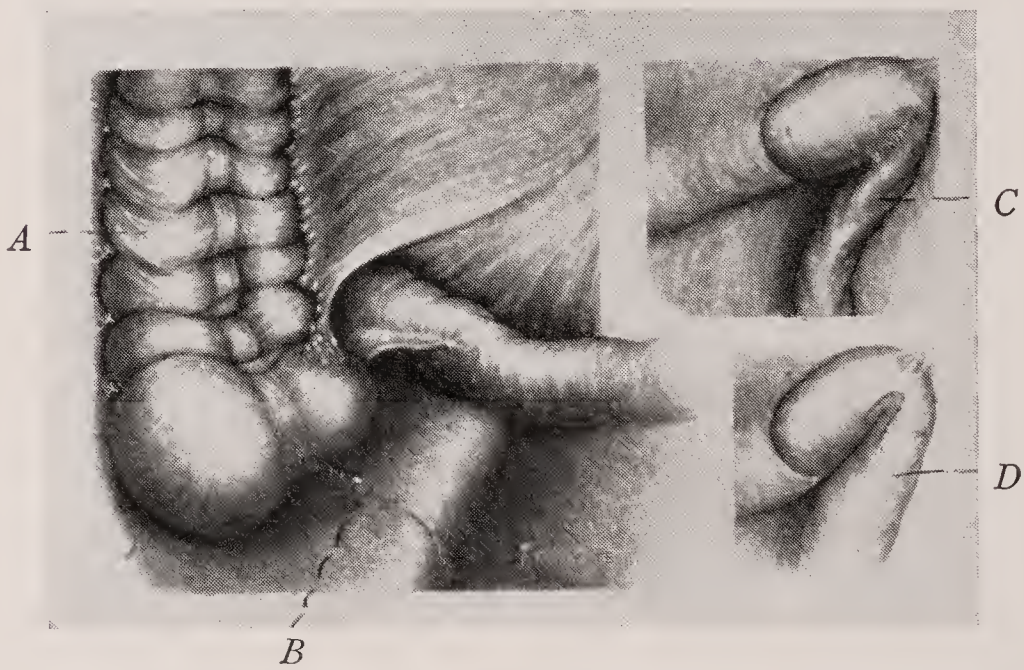


FIG. 6*a*.—*A*, Parietocolic bands severed, raw surfaces covered, cecum and ascending colon sutured in place; *B*, band from mesoappendix to ovary severed and raw surface covered by interrupted sutures; *C*, accentuated duodenojejunal angle; *D*, *C* corrected.

caccules much dilated, forming a large cavity for gas and feces to collect. Thinned-out parietocolic bands about ascending colon (Fig. 6), holding it up in the false pelvis. The posterior muscle

band was anterior with the descent of the gut and its rotation from without inward. The appendix was inflamed, and presented a number of adhesions. It was removed in the usual way. There was angulation at the duodenojejunal junction, which was corrected (Fig. 6a). From the mesoappendix there was a band running down into the pelvis, involving the right ovary, which was somewhat fibroid (Fig. 6). These bands were detached and liquid paraffin freely applied. The cecum and ascending colon were anchored in position to the lateral wall. The pelvic colon was somewhat redundant, but the last kink was fairly normal. The splenic flexure was below the umbilicus, but its outlet was not obstructed.

FIG. 7.—*A*, Extensive adhesions between coils of small intestine and omentum, which were also adherent to anterior abdominal wall; *B*, omentum attached to ascending colon.

The patient made an uneventful recovery from this conservative operation, and has steadily improved since. All symptoms have disappeared, she now weighs 118 pounds, has good appetite, is cheerful, has no more of the attacks of pain in the right side at the menstrual period—in short, she is perfectly well.

CASE VII.—Mrs. C., forty years of age, one child, several miscarriages. Operation, January 30, 1912, for appendicitis. Curetted on the same occasion. Fairly well, except for digestive disturbances and profuse menstrual flow, until the latter part of 1914. She then consulted me again, complaining of pain in the lower abdomen toward the left side, pain in the back, extending down to the knees, digestive disturbances, and excessive menstrual flow, lasting sometimes for about twenty days. For about a year she had been under treatment for what her physician pronounced mucous colitis. Frequent vomiting attacks with nausea increasing in number and

severity until ten days before operation when nothing could be retained. Operation, January 13, 1915, at Alston's Private Hospital, revealed the following conditions: Extensive adhesions between the coils of the small intestine and omentum and the anterior abdominal wall (Fig. 7), necessitating very careful opening of the peritoneum. The omentum was attached to the abdominal wall in the vicinity of the median line below the umbilicus, and also to the ascending colon, from cecum to hepatic flexure. In the interval between these two lines of adhesions the omentum was attached to the coils of small intestines, which were, in turn, attached to each other. There were extensive adhesions between the last 3 inches of the ileum and the cecum, and between the ileum and a cyst

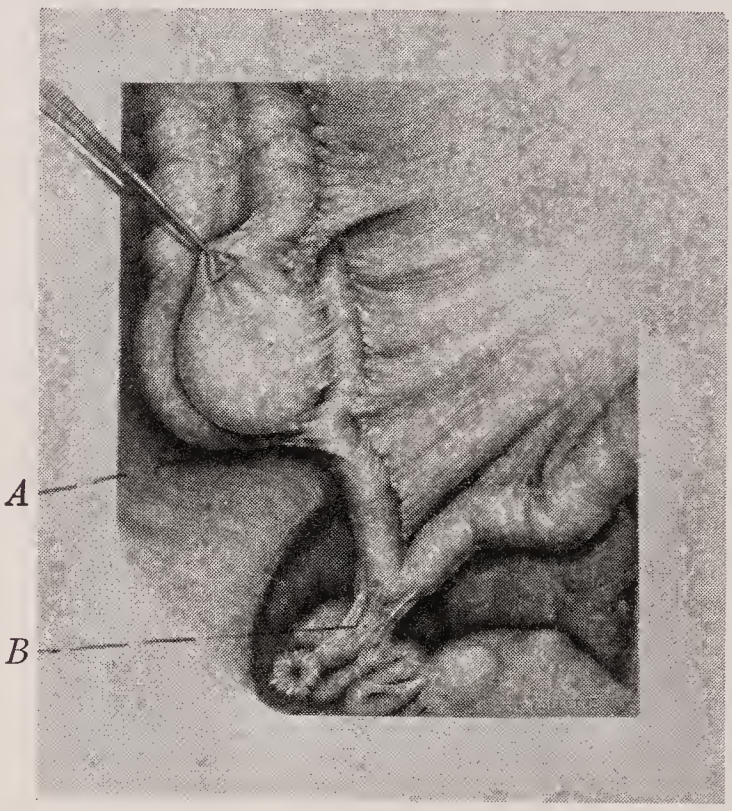


FIG. 7a.—*A*, Terminal ileum adherent to cecum; *B*, band attaching ileum to right ovary.

of the right ovary, the Fallopian tube, and the wall of the pelvis (Fig. 7*a*). The uterus was much enlarged, and contained a number of small subperitoneal fibroids. The right ovary was cystic, measuring about an inch and a half in diameter. The left ovary and tube had been removed at a previous operation (1912), and in their situation was a serous cyst, measuring 3 inches in diameter, probably parovarian. This was adherent to the posterior abdominal wall and to the intestinal coils in such a way as to shut off the true pelvis. There were no adhesions in the region of the gall-bladder, but this organ contained three stones about as large as the tip of a finger. These were not interfered with because of the extent of the operation in the abdomen. All of the adhesions were severed. About 2 inches of the omentum, which was greatly thickened, presented so much raw surface that it was amputated, the line of division being separately ligated with catgut and then rolled over

and covered in with a continuous silk suture. The right ovary and tube, the body of the uterus, and the parovarian cyst were removed *en masse*. Before closing the abdomen a considerable quantity of sterilized liquid paraffin was distributed over the raw surfaces left by breaking up adhesions which were too extensive to be covered by suturing.

The patient made an uneventful recovery, and has continued to improve, until she has been practically restored to health.

Lane has reported cases which, in his opinion, establish the existence of a causal relationship between chronic intestinal stasis and diseases of the liver, gall-bladder, and pancreas. Many diseases of the liver, he holds, may result from infections of the ducts, its tissues being devitalized by the large amount of toxins in the blood which nourishes them. This appears to be a reasonable hypothesis, and if it be true, the prevention and cure of chronic intestinal stasis forms an important part of the prevention and cure of diseases of these organs, including, in Lane's opinion, visceral cancer. The following cases are suggestive in this connection.

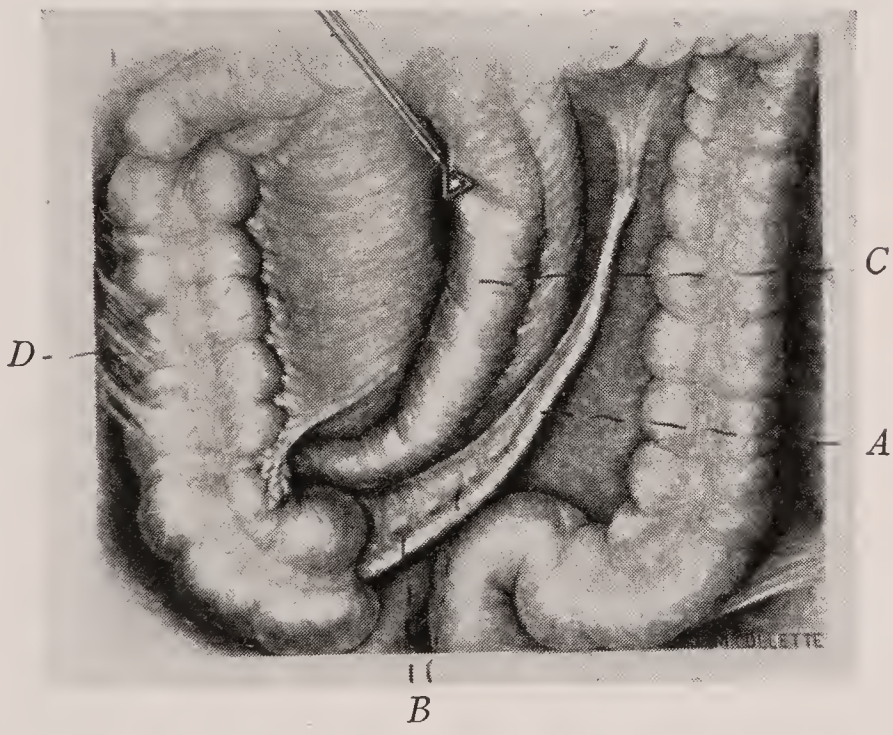


FIG. 8.—*A*, Long appendix, attached to left; *B*, enlarged glands in mesoappendix; *C*, ileum help up. If allowed to fall, as when the individual is in the upright position, it would form an "appendiceal tie"—the appendix would form the fixed point causing an ileal kink, with resulting ileal stasis.

CASE VIII.—C., male, aged nine. Referred by Dr. S. S. Bedient, Little Valley, N. Y., August 6, 1912. Two years before the patient had begun to have periodic attacks of severe pain in the left side, high up under the ribs, with prolonged vomiting, sometimes lasting for hours, after a full movement of the bowels. Several physicians and surgeons were consulted, and various diagnoses were made—Addison's disease, toxemia, Bright's disease, uremic poisoning, stoppage of gall-duct. Careful dietary and hygienic régime, recom-

mended by one of the physicians consulted, was rigidly carried out for two years, with no results. Physical examination revealed distinct tenderness at the left hypochondrium; slight enlargement of the left kidney; some dilatation of the stomach; distention of colon at splenic flexure. Urine contained albumin and few casts. Exploratory laparotomy, at Chautauqua Lodge, August 17, 1912, with the following findings: Stomach dilated; a few short adhesions about pylorus. Appendix the seat of chronic inflammation; enlargement of a chain of small glands from appendix down to mesoappendix and up under mesentery (Fig. 8). Appendix attached over to left side, almost to splenic flexure of colon. Ileum and duodenum dilated. Ileal kink, with backward pressure on gall-duct, and pancreas, as evidenced by congestion. Appendix removed, adhesions severed, peritoneum sutured and cut surfaces covered with liquid paraffin. Recovery uneventful, discharged in two weeks with urine normal. March, 1915, doctor reports patient as well since discharge and urine normal.

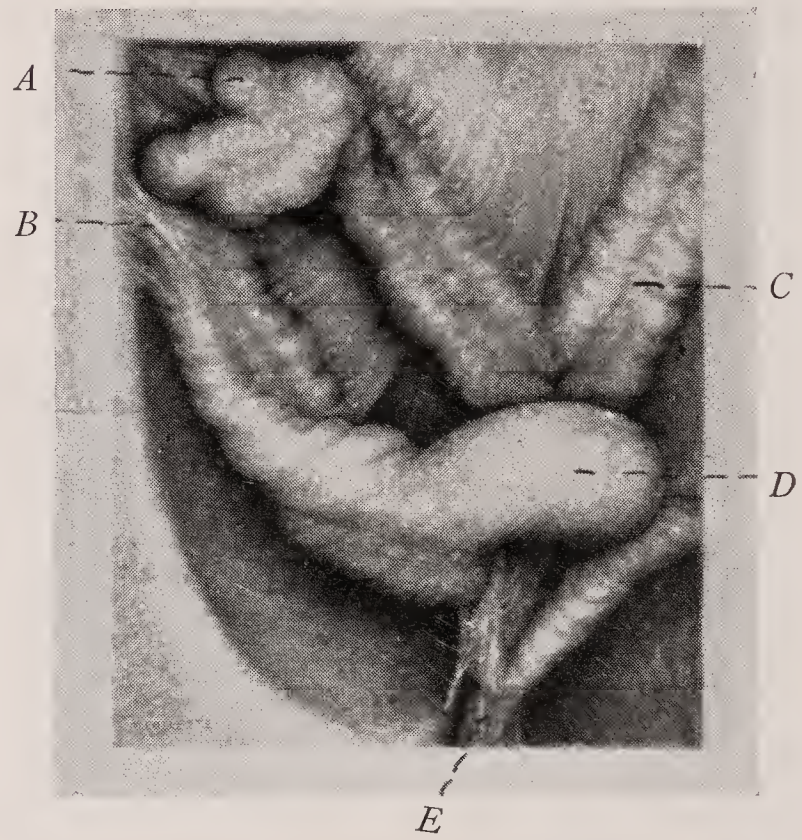


FIG. 9.—*A*, Hepatic flexure, accentuated by bands; *B*, parietocolic band; *C*, prolapsed transverse colon; *D*, cecum, elongated and pouch-like; *E*, appendix adherent to cecum and fixed loop of ileum.

CASE IX.—R., female, fifty-nine years of age, unmarried. Referred by Dr. A. P. Lensmann, Seattle, Wash., November 6, 1914. A long history of chronic constipation, abdominal pains, sometimes acute and severe, backache, cold hands and feet, loss of weight and strength; practically a chronic invalid. Consulted several physicians, and was given nonsurgical treatment for duodenal ulcer. From the history and physical examination, reinforced by Röntgenoscopic examination, the diagnosis of chronic intestinal stasis was made. Operation, December 8, 1914, at the New York Polyclinic Hospital. The following conditions were found: On explora-

tion, before disturbing the viscera, the greater curvature of the stomach was found to be at the level of the pelvic brim and the

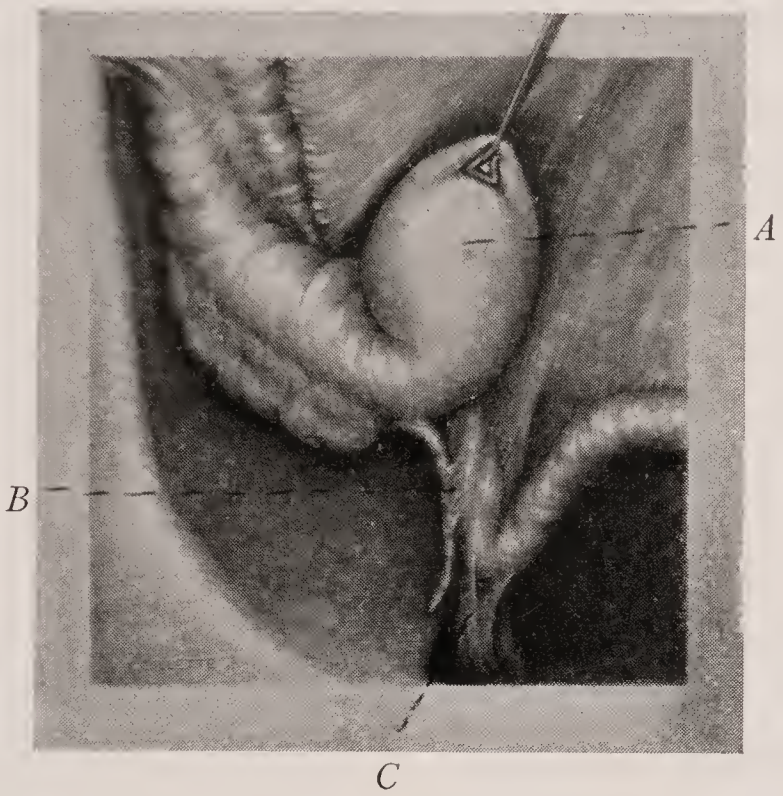


FIG. 9*a*.—*A*, Cecum; *B*, ileum and attached appendix; *C*, ileopelvic band and ileal kink.

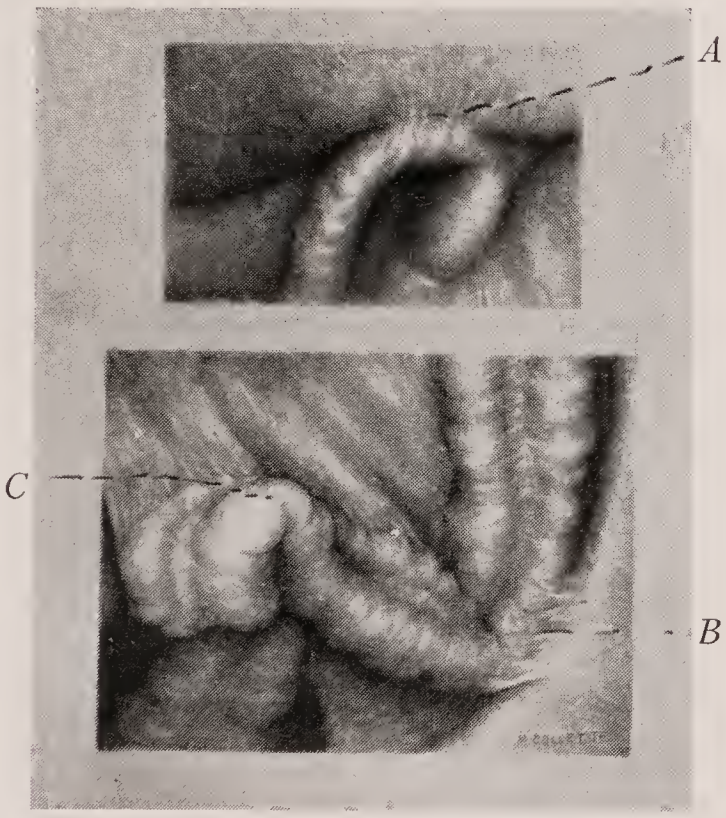


FIG. 9*b*.—*A*, Adhesions of small bowel to undersurface of transverse mesocolon at site of inflammatory mass, evidently result of ulceration; *B*, band attaching last kink of pelvic colon to flank, causing accentuation of kink; *C*, redundant pelvic colon.

pylorus at the level of the umbilicus. The scar of an old ulcer was plainly felt on the posterior wall of the first portion of the duodenum,

resting on the head of the pancreas. The duodenum was dilated and sacculated slightly. The duodenojejunal angle was accentuated by an adventitious band of adhesions 1 inch wide, fibrous, and thickened at the inferior margin. A loop of terminal ileum was firmly anchored over the brim of the true pelvis by three connected bands converging toward the infundibulopelvic ligament. The cecum presented itself as a 4-inch, elongated pouch, rotated in three-quarters of a circle on its long axis (Fig. 9). The appendix was atrophic and adherent to a cecal pouch and to the fixed loop of the ileum (Figs. 9 and 9*a*). The ascending colon was angulated by a band of adhesions attached to the right lateral wall of the abdomen midway between the ileocecal valve and the hepatic flexure (Fig. 9). The transverse colon was flabby, pale in color, and prolapsed into the pelvis (Fig. 9). The splenic flexure of the colon was suspended about 3 inches below the average point of fixation. The last kink of the pelvic colon was markedly accentuated by strong fibrous bands (Fig. 9*b*), and was redundant. Ileocolostomy with colectomy was performed.

Twelve days after operation the patient developed typhoid fever, which lasted about three weeks. Small abscess formed in the upper part of the wound weakening the wall, otherwise convalescence uneventful. Condition August 31, 1915, greatly improved, and steadily gaining. Small abdominal hernia to be attended to later.

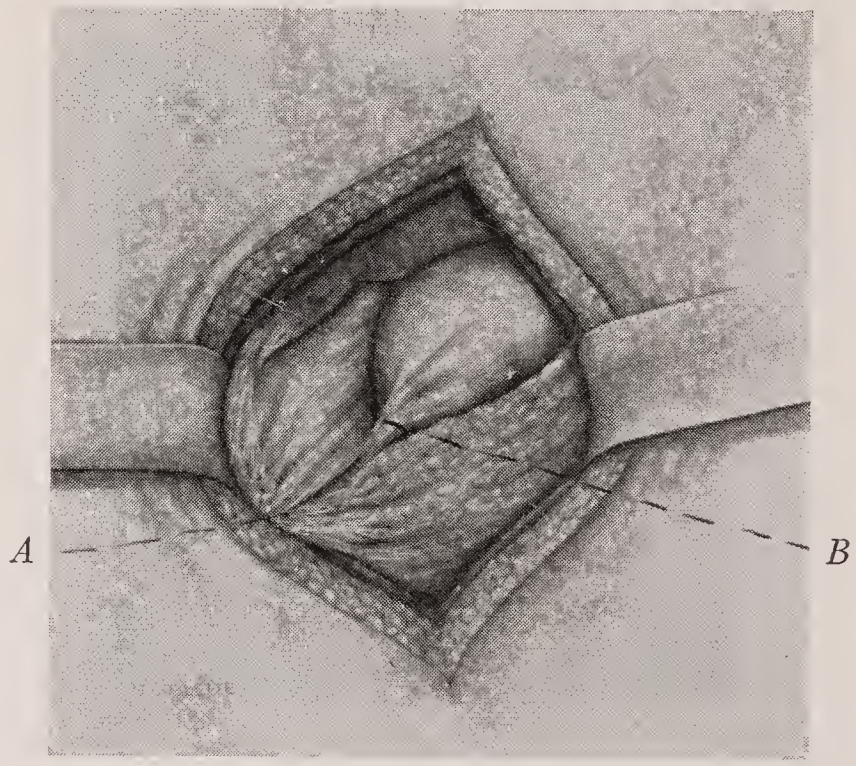


FIG. 10.—*A* and *B*, Adhesion of gall-bladder (*A*) and duodenum (*B*) to abdominal wall at site of old scar.

CASE X.—Mrs. I., forty-three years of age. Referred by Dr. William Van Valzah Hayes, New York City. Admitted to the New York Polyclinic Hospital, February, 1915. According to the history, eight years before she had had abdominal pain, nausea, and vomiting, coming on after eating; no jaundice. Was operated on for gall-stones, several stones being removed. She recovered

from this operation, but three weeks later had a return of pain and was again operated upon, this time for renal stones. None were found, but a floating kidney, right side, was discovered. She still complained of nausea and vomiting, with large quantities of mucus. Two months before admission to the hospital the symptoms became so severe that she again sought relief. Jaundice of marked degree had developed. The diagnosis of chronic pancreatitis, obstructive jaundice, gall-stones, and chronic intestinal stasis made from the history and physical signs. Operation, February 23, 1915. The following conditions were found: The liver was adherent to the costal cartilage of the ninth rib and to the scar of a former operation (extrarectal incision) (Fig. 10). The gall-bladder was adherent to the liver, duodenum, great omentum, and the old scar. It had evidently been drained at the former operation. With great difficulty it was separated from the wound and from the liver, and the

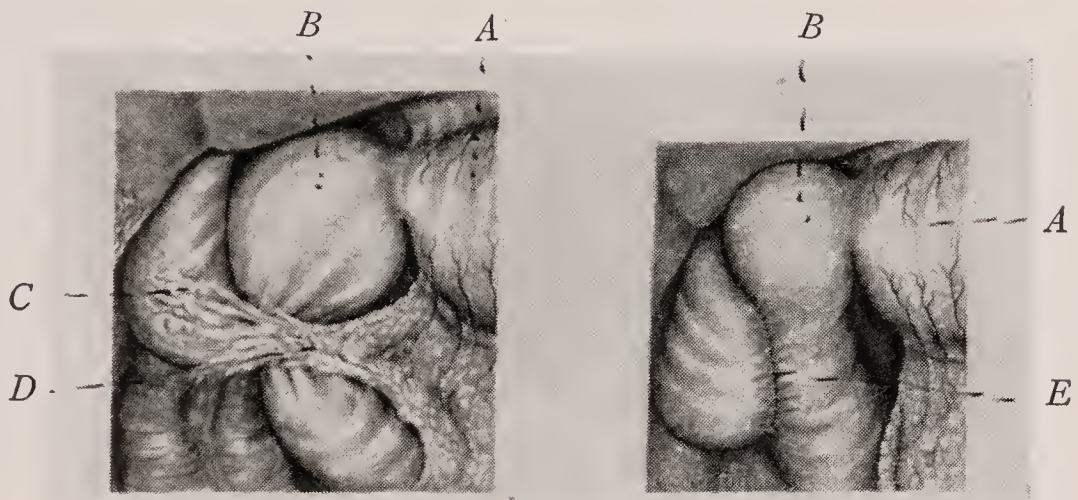


FIG. 10*a*.—*A*, Stomach; *B*, dilated duodenum before and after operation; *C*, gall-bladder; *D*, band of adhesion between edge of great omentum, gall-bladder, and head of pancreas; *E*, cholecystduodenostomy performed.

liver from the scar. The gall-bladder was not opened, but the omentum was separated and pushed downward, and the gall-bladder dissected free down to its duct. A mass was felt at the head of the pancreas, nodular in character, extending through the entire pancreas, but more marked at the head. The spleen was somewhat enlarged, and there were adhesions of the great omentum to the left side, in the neighborhood of the costocolic ligament. About an inch beyond the pylorus was an acute angulation backward of the duodenum (Fig. 10*a*), which was tightly adherent to the great omentum in the neighborhood of the foramen of Winslow. These adhesions were separated and an extensive raw surface left on the first portion of the duodenum, which was covered in part by the gall-bladder. The gall-bladder was then opened and seventeen stones, the size of peas, removed. Anastomosis was made between the gall-bladder and the first portion of the duodenum (Fig. 10*a*). The entire pancreas was enlarged, the absence of metastasis suggesting inflammation rather than malignancy. The angulation of the duodenum was corrected as far as possible and the raw surfaces

covered, paraffin being then introduced. The pyloric orifice barely admitted the tip of the index-finger, the walls being thickened. A piece of great omentum was sutured into position between the gall-bladder and the liver and over the duodenum. Convalescence was uneventful; patient much improved and steadily gaining when last seen, April 29, 1915,

A very frequent concomitant of chronic intestinal stasis is dilatation of the stomach, with ulceration about the pylorus. The following are illustrative cases:

Case XI.—Mrs. S., twenty-two years of age. Referred by Dr. I. Arthur Stoloff, New York City, December 16, 1913. After the birth of her first child, now three years old, the patient began to have severe pains in the right side. She consulted a surgeon who

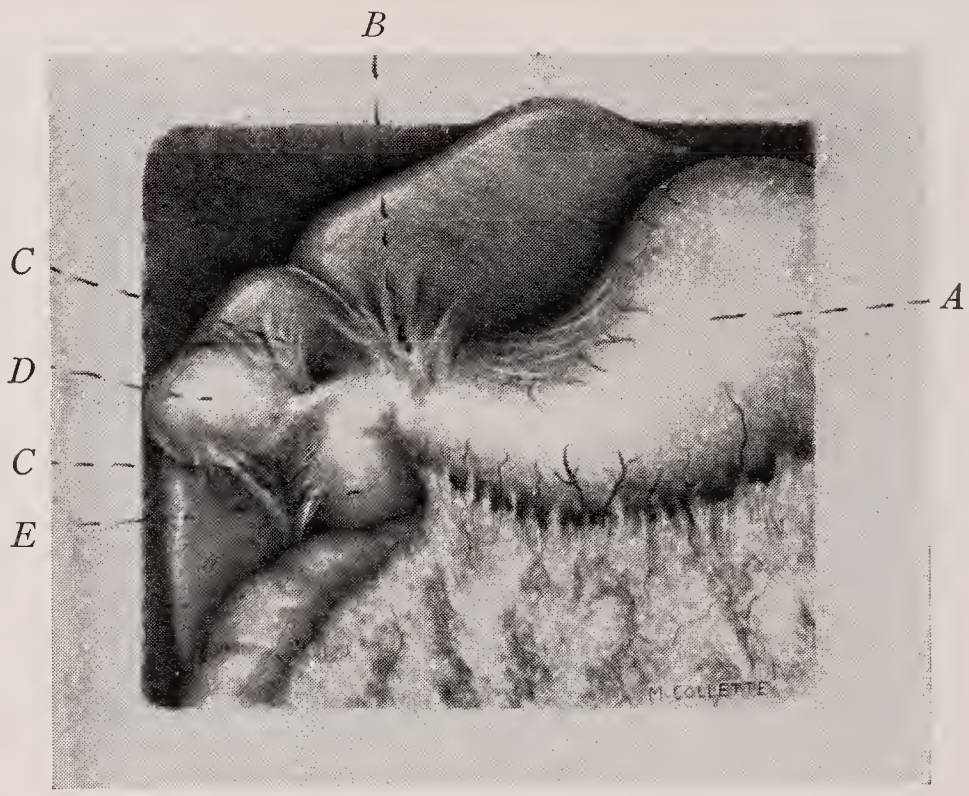


Fig. 11.—*A*, Stomach; *B*, adhesions between liver and stomach; *C*, adhesions between liver and gall-bladder; *D*, Gall-bladder adherent to duodenum; *E*, liver adherent to duodenum.

operated upon her for gall-stones, removing a hundred stones. She continued to have pain in the side, but not so severe as before the operation. Another surgeon advised operation for floating kidney, but this was not accepted. When first seen by me she complained of constant pains in the abdomen, of nausea and of heartburn. On physical examination it was found that the scar over the gall-bladder was adherent to the liver, and there were undoubtedly adhesions surrounding the pylorus, extending down toward the duodenum. There was distinct tenderness along the ascending colon. The right kidney was slightly movable. Operation, January 30, 1914, at the New York Polyclinic Hospital, with the following findings: The stomach and gall-bladder were adherent to the anterior abdominal wall; there were also lines of adhesion

extending from the stomach to the duodenum, gall-bladder and falciform ligament (Fig. 11). These adhesions were separated (Fig. 11*a*), and a pad of fat, removed from the left thigh, was placed between the raw surfaces of the gall-bladder, stomach and duodenum and sutured. Adhesions about the mobile cecum were severed, and the appendix was removed. Recovery uneventful. Since the operation the patient has steadily improved, and is now well.

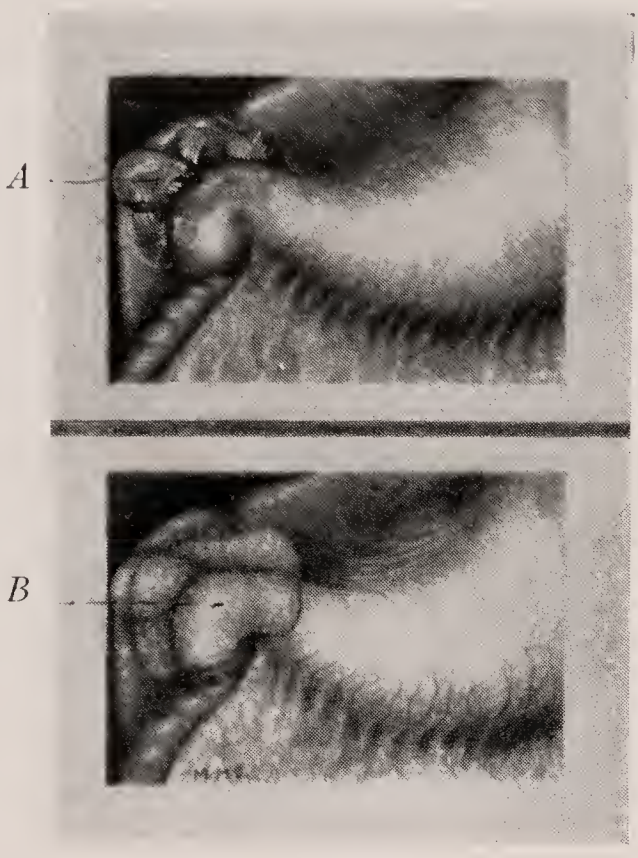


FIG. 11*a*.—*A*, Adhesions separated, leaving raw surfaces; *B*, raw surfaces covered with pad of fat from thigh.

CASE XII.—Mrs. P., forty-five years of age. Referred by Dr. William Van Valzah Hayes, New York City, March 1, 1915, with a history of ulcer and pyloric stenosis, and with the recommendation for operation. Upon this history, the physical examination, and the fluorscopic diagnosis, operation was advised, and performed, March 8, 1915, at the New York Skin and Cancer Hospital. The following conditions were found: The great omentum was adherent to an old appendicular scar on the abdominal wall. A band from the center of the ascending colon, very broad and vascular, extending from the lateral wall opposite the crest of the ileum, leaving the lower part of the ascending colon and cecum very mobile and dilated. The appendix was absent. The cecum and ascending colon could be drawn up out of the abdominal cavity and carried over to the left nipple. The cecum was very much enlarged, with thickened walls. Running under the mesentery of the terminal ileum were plainly visible crystallizations of lines of stress. The pelvic colon was very redundant, and the last kink was accentuated. This was corrected. The stomach was markedly dilated, extending to the symphysis pubis. The duodenum was dilated to the size of the large intestine (Fig. 12). Slight kinking at the duodenojejunal

junction. Nonmalignant ulcer, the size of a silver dollar, on pylorus. Gastroenterostomy was performed, a very large opening being made.

The transverse colon being very mobile, the hepatic flexure being well down in the flank, the cecum being a great cesspool three times

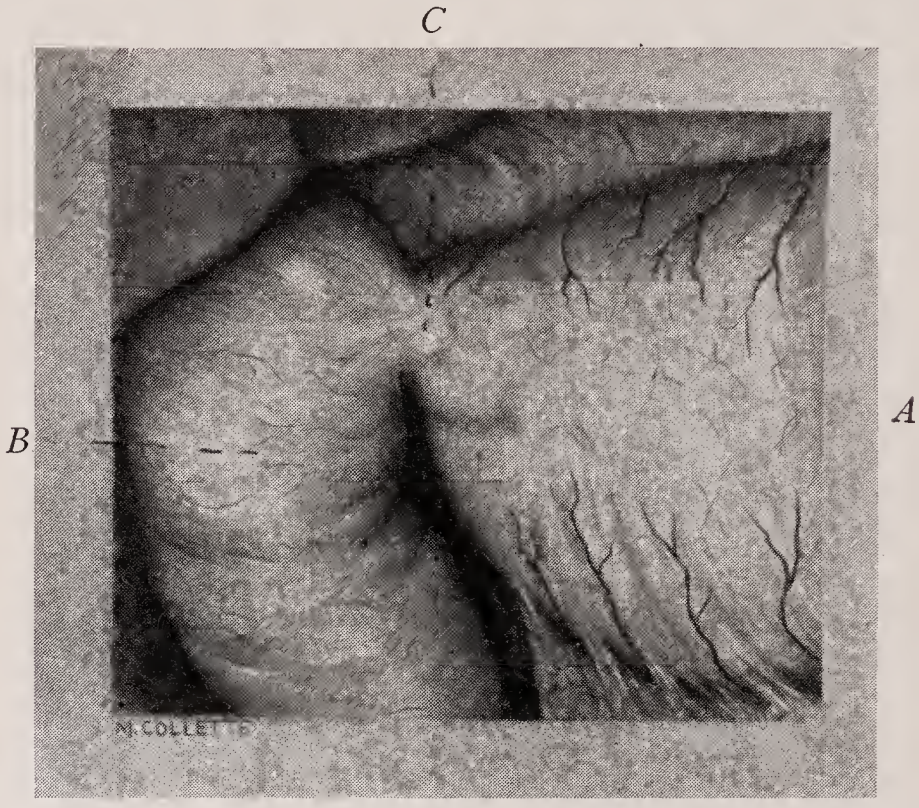


FIG. 12.—*A*, Markedly dilated stomach; *B*, dilated duodenum; *C*, obstructed pylorus at site of old ulcer.

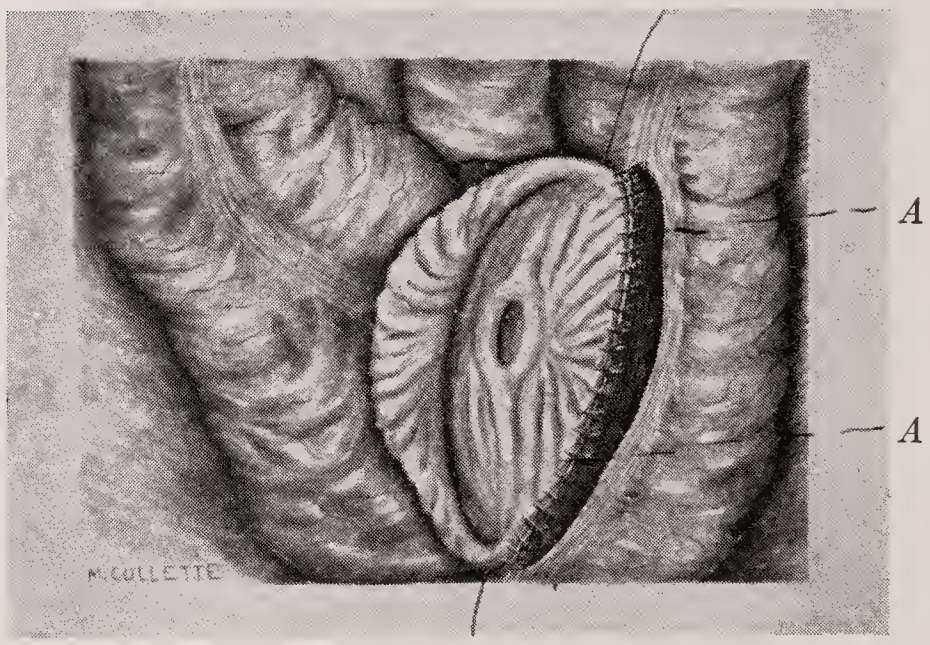
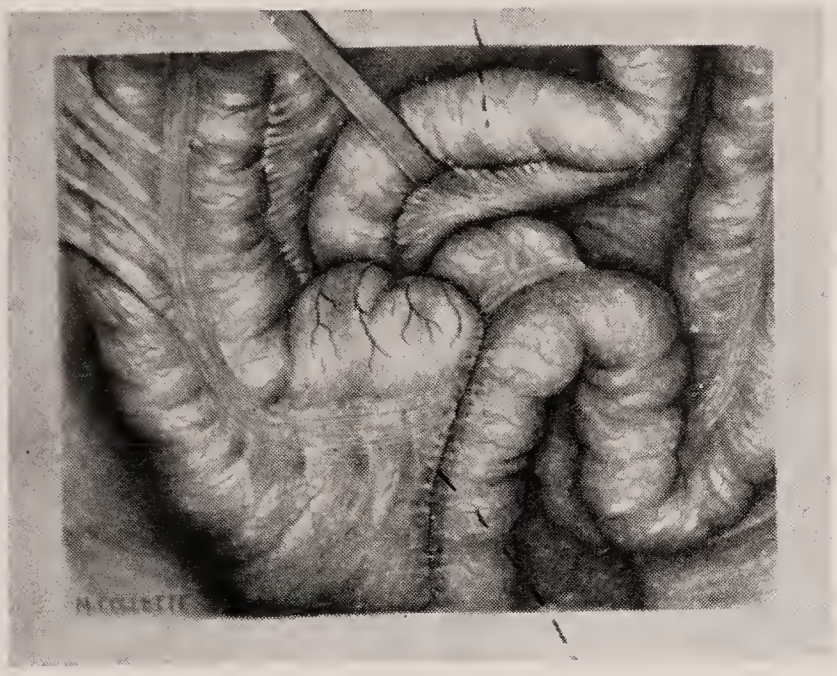


FIG. 12*a*.—*A*, First step of cecosigmoidostomy. Pictures shows opening from cecal side.

normal size and occupying the culdesac of Douglas, the sigmoid being redundant, and the patient being in very poor condition, it was determined to test the efficacy of the following method (Figs. 12*a* and 12*b*); the butt end of the cecum was united to the pelvic colon low down in the pelvis, below the last kink, the opening being

made large enough to admit four fingers. The cecum was opened, and when opened showed a normal ileocecal valve. This valve had been tested carefully and found to be competent.

Before complete closure of the abdomen the cavity was filled with warm normal saline solution. As soon as this was introduced the pulse showed immediate improvement. Uneventful recovery. Steady gain in strength and health, patient feeling better than for years.



A

FIG. 12*b*.—*A*, Cecosigmoidostomy completed. Dilated cecum united to pelvic colon below last kink.

The method of introducing the saline solution is that which I have employed for the introduction of oxygen,(5) and is shown in Figs. 13, 14, 15 and 16. By this method exact quantities of solution can be employed, which is preferable to the method of pouring it into the abdominal cavity.

Conclusion.—The condition and the resulting symptom-complex now described under the designation, chronic intestinal stasis, has been established through the lapse of time and the accumulation of experience. It is, primarily, a condition which is amenable to dietetic, hygienic and medicinal treatment, and should not, therefore, be so generally considered as coming entirely within the category of a surgical affection. If, however, through neglect or improper treatment the individual case is no longer amenable to preventive measures and those which come within the province of the internist or gastroenterologist, conservative surgical procedures may be employed, especially in milder cases. Unfortunately, many cases progress to a more advanced stage before relief is definitely sought, and in such cases it may be necessary to resort to the more radical surgical procedures, such as ileocolostomy or colectomy.

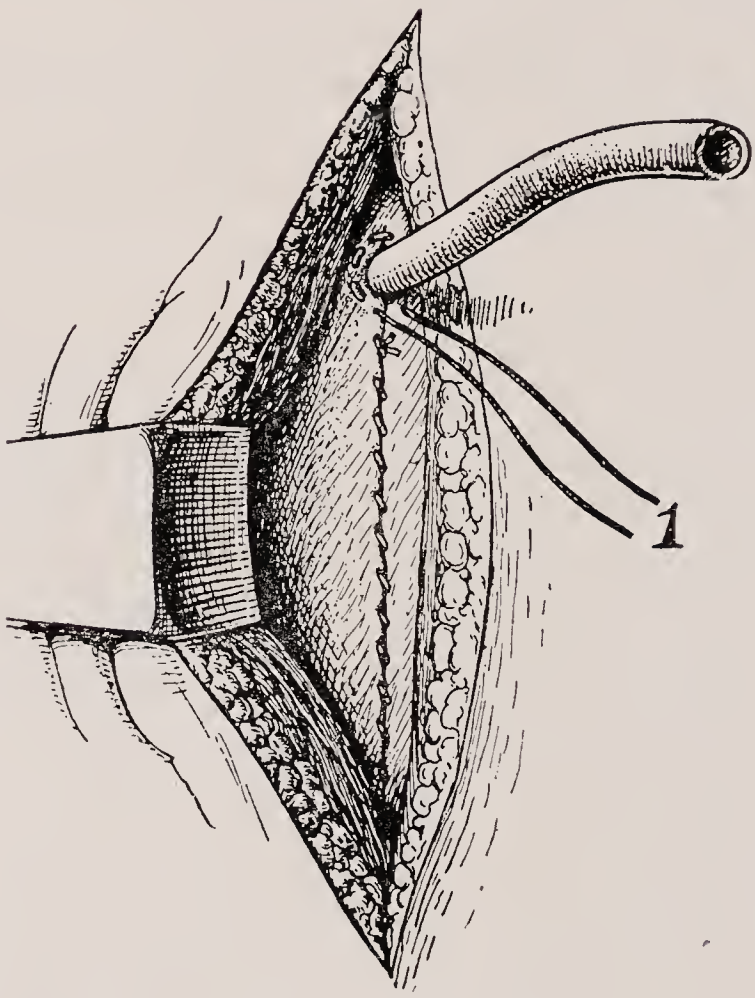


FIG. 13.—The abdominal wound is closed except at the lower or upper end as the case may be, where the free end of the tube is placed within the abdominal cavity. One stitch is introduced above and one below the tube and these are tied. An interrupted stitch is placed in the peritoneum at this point, ready to be tied, and a purse-string suture is introduced around the tube in the peritoneum left long but not tied (1).

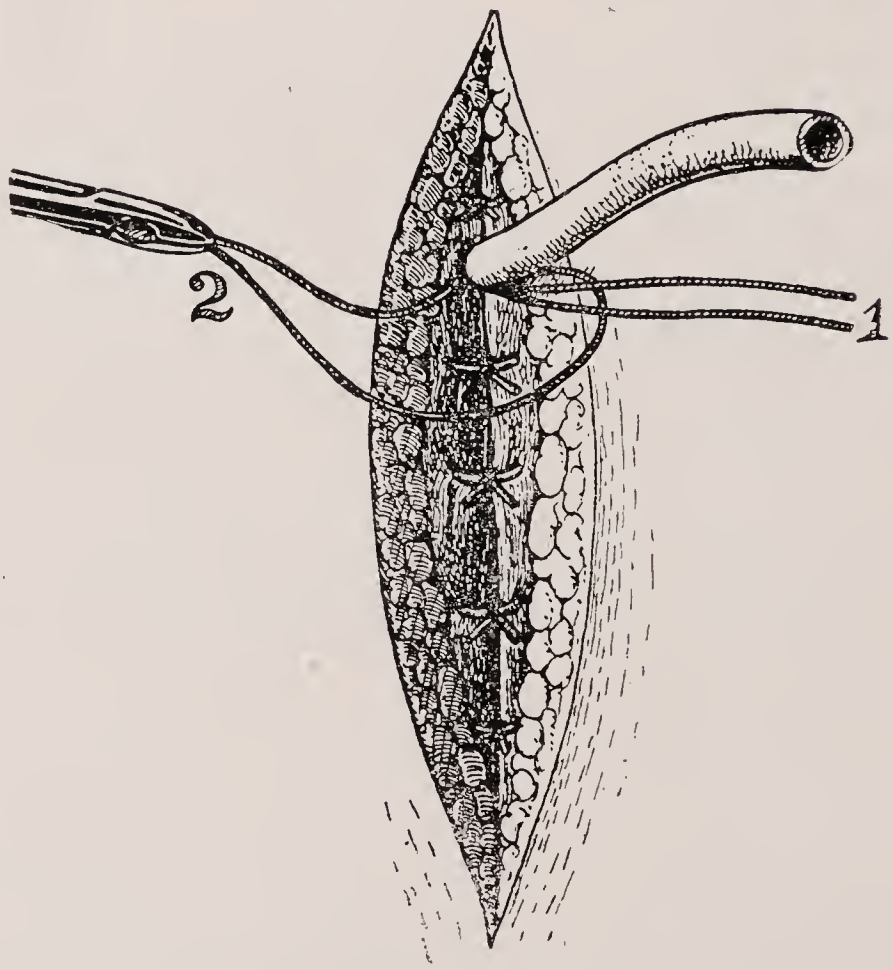


FIG. 14.—All layers of the abdominal wall are closed up to the skin and the stitches tied, with the exception of those in juxta-position to the tube. 1, Untied ends of peritoneal purse-string; 2, untied suture through aponeurosis passing half way around the tube. Aponeurosis closed with interrupted sutures.

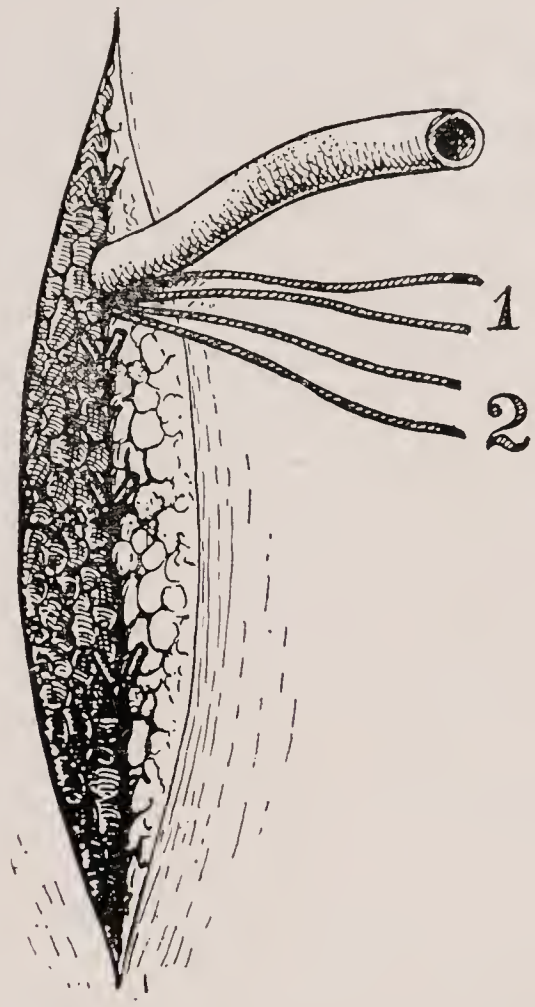


FIG. 15.—Superficial fascia united. 1, Untied peritoneal purse-string; 2, untied aponeurosis suture.

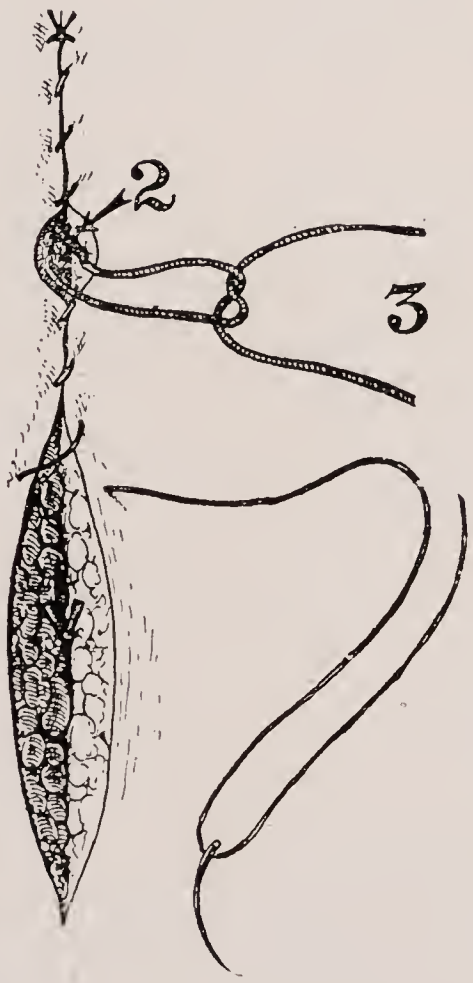


FIG. 16.—Tube withdrawn; 2, peritoneal purse-string tied, knot beneath aponeurosis; 3, aponeurosis suture. Figure illustrates practicability of placing skin stitches while tube remains in the abdomen.

The sequence of therapeutic intervention always to be kept in mind is: (1) Prevention; (2) Conservative Surgery; (3) Radical Surgery. In all cases in which surgical treatment is employed, the after-care of the patient is of the utmost importance. Nature, so long outraged, cannot justly be expected to resume normal function at once and without the aid furnished by regulated diet and habits of life, artificial support to the weakened abdominal muscles and viscera, and other measures suited to the needs of the individual.

From the cases cited, and many others in my own experience and that of some of my confrères, there is reason to believe that chronic intestinal stasis plays an important part, either in initiating or in augmenting, many conditions which were formerly not associated, from the etiologic point of view, with perverted function of the gastrointestinal tract. These far-reaching possibilities should be borne in mind by practitioners in every field of medicine and surgery.

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REFERENCES.

1. Lane, Sir Arbuthnot. The Operative Treatment of Chronic Intestinal Stasis, Third Edition, London, 1915, p. 84.

2. Bainbridge, Wm. Seaman. The Significance of Intraabdominal "Bands," "Folds," and "Veils." *Boston Med. and Surg. Jour.*, vol. clxx, No. 8, pp. 261–267, February 19, 1914.

3. Case, James T. Röntgenologic Observations on the Function of the Ileocolic Valve. *Jour. Am. Med. Assn.*, Oct. 3, 1914, vol. lxiii, 1194.

Ibid. Further *X*-ray Studies on the Ileocecal Valve and the Appendix. *Am. Jour. of Röntgenology*, August, 1914.

Ibid. A Critical Study of Intestinal Stasis, Including New Observations and Conclusions Respecting the Causes of Ileal Stasis. *Surg., Gyn., and Obst.*, November, 1914, 592.

Rutherford, A. H. The Ileocecal Valve, 1914.

Case, James T. *X*-ray Observations on Colonic Peristalsis and Antiperistalsis with Special Reference to the Function of the Ileocolic Valve. Trans. XVIIth International Congress of Medicine, Section XXII, Radiology, August 6, 1913.

Kellogg, J. H. Surgery of the Ileocolic Valve. *Surg., Obst., and Gyn.*, 1913.

4. Bainbridge, Wm. Seaman. The Cancer Problem, 1914, pp. 202 and 444.

Ibid. A Contribution to the Study of Chronic Intestinal Stasis. *Medical Record*, September 27, 1913.

Ibid. Chronic Intestinal Stasis. Types of Cases. Preventive and Medical Treatment Outlined. *Woman's Med. Jour.*, January, 1914.

Ibid. Oxygen in Medicine and Surgery—A Contribution, with Report of Cases. *New York State Jour. of Med.*, June, 1908.

Ibid. The Intraabdominal Administration of Oxygen—A Further Contribution, with Reports of Additional Cases. *Annals of Surgery*, March, 1909.

Ibid. Technic of the Intraabdominal Administration of Oxygen. *American Jour. of Surg.*, October, 1913.

Ibid. Intestinal Stasis in Relation to Cancer Etiology and Prophylaxis. *Jour. of Med. Soc. of New Jersey*, 1912.

Ibid. The Surgical Treatment of Chronic Intestinal Stasis. *American Jour. of Gastroenterology*, July, 1913.

Ibid. Chronic Intestinal Stasis. *Maine Med. Jour.*, July, 1913.

Ibid. Remarks on Chronic Intestinal Stasis with Reference to Conditions Found at Operation and the Mortality. *British Medical Journal*, November 1, 1913.

Ibid. Chronic Intestinal Stasis. *A*, Types of Cases; *B*, Preventive and Medical Treatment Outlined. *Woman's Medical Jour.*, January, 1914.

Ibid. Chronic Intestinal Stasis Surgically Considered. *New York Med. Jour.*, January 24, 1914.

Ibid. The Preparation and After-care of Short-circuit and Colectomy Patients with Drawings of Illustrative Cases of Chronic Intestinal Stasis. *International Journal of Surg.*, April, 1914.

Ibid. Fluoroscopic and *X*-ray Diagnosis in the Light of Operative Findings, with Illustrative Cases. *American Journal of Röntgenology*, September, 1914.

Ibid. Human Plumbing—Amelioration and Cure of Chronic Intestinal Stasis (Illustrated). *Charlotte (N. C.) Medical Journal*, October, 1914; also Trans. of the North Carolina Medical Society, 1914.

Ibid. Operative Findings in Twelve Cases of Chronic Intestinal Stasis. Amer. Jour. of Obst., January, 1915.

Ibid. Chronic Intestinal Stasis—Fluoroscopic and *X*-ray Diagnosis in the Light of Operative Findings, with Illustrative Cases. *Jour. of Michigan State Med. Soc.*, March, 1915.

Ibid. The Operative Treatment of Chronic Intestinal Stasis. *United States Naval Medical Bulletin*, vol. ix, No. 2, 1915.

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